

A STUDY OF THE CRYSTAL STRUCTURE OF LATIFOLIN ($C_{17}H_{18}O_4$)



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ABSTRACT

X-Ray crystallographic data of Latifolin ($C_{17}H_{18}O_4$) crystal were determined from rotation and Weissenberg photographs. The crystal belongs to the orthorhombic system with cell dimensions:

$$\begin{aligned} a &= 7.38 \pm 0.01 \text{ \AA} \\ b &= 13.48 \pm 0.03 \text{ \AA} \\ c &= 15.42 \pm 0.15 \text{ \AA} \end{aligned}$$

The space group is $P2_1 2_1 2_1$, the point group $2 2 2$, there are four molecules per unit cell. The observed and calculated densities at 27.5°C are 1.234 g/cm^3 and 1.235 g/cm^3 respectively. Refined measurements of the unit cell dimension from a powder photograph yield the following values :

$$\begin{aligned} a &= 7.3887 \pm 0.0006 \text{ \AA} \\ b &= 13.4581 \pm 0.0008 \text{ \AA} \\ c &= 15.6157 \pm 0.0010 \text{ \AA} \end{aligned}$$

หัวข้อวิทยานิพนธ์ การศึกษาโครงสร้างของผลึกสกัดจากไม้พยอม
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บทคัดย่อ

จากการใช้รังสีเอกซ์วิเคราะห์หาข้อมูลทางคริสตัลโรกราฟฟี (Crystallography) ของผลึกแลทธิโฟลิน (Latifolin) โดยใช้วิธีถ่ายภาพแบบการหมุนของผลึก (Rotation) และแบบไวสเซนเบิร์ก (Weissenberg) พบว่าผลึกนี้อยู่ในระบบออร์โธโรมบิก (Orthorhombic system) มีค่าคงที่หนึ่งหน่วยเซลล์ (Cell dimensions)

a =	7.38	± 0.01	อังสตรอม
b =	13.48	± 0.03	อังสตรอม
c =	15.42	± 0.15	อังสตรอม

หมู่สมมาตร 3 มิติ (Space group) ของผลึกเป็น $P 2_1 2_1 2_1$ อยู่ในหมู่พอยท์ (Point group) $2 2 2$ และในหนึ่งหน่วยเซลล์มี 4 โมเลกุล ความหนาแน่นของผลึกที่ 27.5°C วัดได้ 1.234 กรัม ต่อลูกบาศก์เซนติเมตร ค่ามวลโมลได้ 1.235 กรัม ต่อลูกบาศก์เซนติเมตร จากการหาค่าคงที่ของหนึ่งหน่วยเซลล์ให้ละเอียดขึ้น (Refined measurements) โดยใช้การถ่ายภาพแบบการกระจากรังสีเอกซ์ด้วยสารที่เป็นผง (Powder photograph) ได้

a =	7.3887	± 0.0006	อังสตรอม
b =	13.4581	± 0.0008	อังสตรอม
c =	15.6157	± 0.0010	อังสตรอม

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CONTENES

	Page
ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
LIST OF TABLES	viii
LIST OF ILLUSTRATIONS	x
CHAPTER	
I. INTRODUCTION	1
II. X-RAY DIFFRACTION	4
II.1 Relationships of Reciprocal Lattice to Bragg's Law and Laue's Conditions.....	4
II.1.1 Introduction of x-ray diffraction.	4
II.1.2 The Laue conditions	5
II.1.3 The reflection of x-ray by crystal plane and Bragg's law	10
II.1.4 The Reciprocal lattice with Bragg's law and Laue's conditions	12
II.2 Space Group	
II.2.1 Translation and plane lattice	23
II.2.2 Point groups and crystal systems...	23
II.2.3 Space lattices and the 14 Bravais lattices.....	27
II.2.4 Space groups	30



III.	THEORY OF STRUCTURE FACTORS	35
III.1	The Elastic Scattering of x-rays	
III.1.1	Electron as a scatterer of x-ray..	35
III.1.2	The atomic scattering factor	38
III.1.3	Scattering by a unit cell	41
IV.	MEASUREMENTS AND RESULTS	50
IV.1	Taking Rotation photograph	50
IV.2	Taking Weissenberg photograph	56
IV.3	Finding a unit cell	70
IV.4	Determining a space group of Latifolin ($C_{17}H_{18}O_4$)	71
IV.5	Determination of the density and the number of molecules per unit cell (N) of Latifolin ($C_{17}H_{18}O_4$)	72
IV.6	Refinement of cell dimensions	74
V.	DISCUSSIONS	77
	APPENDIX	81
	REFERENCES	141
	VITA	143

LIST OF TABLES

Table	Page
2.1 Symmetry elements	25
2.2 Crystal system and its minimum symmetry elements..	27
2.3 Space lattice types	28
2.4 The Fourteen Bravais Lattices	29
2.5 Symmetry interpretations of extinctions	32
2.6 Space group determination of orthorhombic point group 222	34
4.1 Determination of \bar{a} axis length from $[100]$ rotation photograph	53
4.2 Determination of \bar{b} axis length from $[010]$ rotation photograph	54
4.3 Necessary parameters for taking equi-inclination Weissenberg photographs	55
4.5 Unit cell dimensions	70
4.6 Determination of space group of Latifolin ($C_{17}H_{18}O_4$)	71
4.7 Densities and the number of molecules per unit cell (N) of Latifolin ($C_{17}H_{18}O_4$).....	73
4.8 Refinement of cell dimensions	75
4.4 (a) Indices of spots from plane $(0k\ l)$	81
(b) Indices of spots from plane $(lk\ l)$	89
(c) Indices of spots from plane $(2k\ l)$	98
(d) Indices of spots from plane $(3k\ l)$	108

Table

Page

9.4	(e) Indices of spots from plane (h0 l).....	117
	(f) Indices of spots from plane (h1 l).....	122
	(g) Indices of spots from plane (h2 l).....	128
	(h) Indices of spots from plane (h3 l).....	135

LIST OF ILLUSTRATIONS

Figure	Page
2.1 An electron acts as a source of secondary x-rays..	4
2.2 Cooperative scattering by two sources	5
2.3 The conditions for diffraction by a row of atoms..	6
2.4 Showing cones of diffracted beam formed by a row of identical regularly spaced atoms	7
2.5 Intersection of two cones defining possible scattering direction	9
2.6 (a) Intersecting cones defining possible diffraction for three dimensional lattice.....	9
(b) Defining possible diffraction direction.....	9
2.7 A reflecting plane $(hk\ell)$	11
2.8 (a) Reflection by a plane $(hk\ell)$	11
(b) Reflection from stack of planes $(hk\ell)$	11
2.9 Geometrical representation of Bragg's law	13
2.10 Bragg reflection and the reciprocal lattice	14
2.11 (a) Geometrical representation of rotation photograph	17
(b) Showing the existence of layer lines in a rotation pattern	17
(c) Cylindrical reciprocal lattice coordinate	17
2.12 Geometrical arrangements for the Weissenberg method	20
2.13 Five plane lattices	23

Figure	Page
3.1 An unpolarized ray travelling along the x-axis and measured at a point P in the xy-plane.....	35
3.2 The scattering of x-rays by a ring of electron within an atom	39
3.3 Scattering factor f for the carbon atom	41
3.4 (a) The effect of atom position on the phase difference between diffracted rays	43
(b) The three dimensional analogue of (a)	43
3.5 Vector addition of diffracted rays from individual atoms	46
4.1 Crystal of Latifolin ($C_{17}H_{18}O_4$) with the chosen axes \bar{a} and \bar{b}	51
4.2 (a) Rotation photograph of Latifolin ($C_{17}H_{18}O_4$); $[100]$ rotation axis; unfiltered CuK - radiation	52
(b) Rotation photograph of Latifolin ($C_{17}H_{18}O_4$); $[010]$ rotation axis; unfiltered CuK-radiation	52
4.3 (a) The zero-level Weissenberg photograph of Latifolin. $[100]$ Rotation axis.....	58
(b) The first-level Weissenberg photograph of Latifolin. $[100]$ Rotation axis.....	58
(c) The second-level Weissenberg photograph of Latifolin. $[100]$ Rotation axis	61
(d) The third-level Weissenberg photograph of Latifolin. $[100]$ Rotation axis.....	61

Figure	Page
(e) The zero-level Weissenberg photograph of Latifolin. [010] Rotation axis	64
(f) The first-level Weissenberg photograph of Latifolin. [010] Rotation axis	64
(g) The second-level Weissenberg photograph of Latifolin. [010] Rotation axis.....	67
(h) The third-level Weissenberg photograph of Latifolin. [010] Rotation axis.....	67
4.4 (a) The reciprocal net of indicies $0k\ell$	59
(b) The reciprocal net of indicies $1k\ell$	60
(c) The reciprocal net of indicies $2k\ell$	62
(d) The reciprocal net of indicies $3k\ell$	63
(e) The reciprocal net of indicies $h0\ell$	65
(f) The reciprocal net of indicies $h1\ell$	66
(g) The reciprocal net of indicies $h2\ell$	68
(h) The reciprocal net of indicies $h3\ell$	69
4.5 The powder photograph of Latifolin ($C_{17}H_{18}O_4$)	74